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Nota di contenuto	Flash Chemistry Fast Organic Synthesis in Microsystems; Contents; Preface; 1 Introduction; 1.1 Flask Chemistry; 1.2 Flash Chemistry; 1.3 Flask Chemistry or Flash Chemistry; References; 2 The Background to Flash Chemistry; 2.1 How do Chemical Reactions Take Place?; 2.1.1 Macroscopic View of Chemical Reactions; 2.1.2 Thermodynamic Equilibrium and Kinetics; 2.1.3 Kinetics; 2.1.4 Transition State Theory; 2.1.5 Femtosecond Chemistry and Reaction Dynamics; 2.1.6 Reactions for Dynamics and Reactions for Synthesis; 2.1.7 Bimolecular Reactions in the Gas Phase 2.1.8 Bimolecular Reactions in the Solution Phase2.1.9 Fast Chemical Synthesis Inspired by Reaction Dynamics; References; 3 What is Flash Chemistry?; 4 Why is Flash Chemistry Needed?; 4.1 Chemical Reaction, an Extremely Fast Process at Molecular Level; 4.2 Rapid Construction of Chemical Libraries; 4.3 Rapid Synthesis of Radioactive Positron Emission Tomography Probes; 4.4 On-demand Rapid Synthesis i n

Industry 304.5 Conclusions; References; 5 Methods of Activating Molecules; 5.1 Thermal Activation of Organic Molecules; 5.1.1 High Temperature Reactions; 5.1.2 Flash Vacuum Pyrolysis
5.1.3 Microwave Reactions5.2 Photochemical Activation; 5.3 Electrochemical Activation; 5.4 Chemical Activation; 5.5 Accumulation of Reactive Species; 5.5.1 The Cation-pool Method; 5.6 Continuous Generation of Reactive Species in a Flow System; 5.7 Interconversion Between Reactive Species; 5.8 Conclusions; References; 6 Control of Extremely Fast Reactions; 6.1 Mixing; 6.1.1 How Does Mixing Take Place?; 6.1.2 Molecular Diffusion and Brownian Motion; 6.1.3 Disguised Chemical Selectivity; 6.1.4 Lowering the Reaction Temperature; 6.1.5 The High Dilution Method; 6.1.6 Micromixing
6.1.7 Friedel-Crafts Alkylation Using anN-acyliminium Ion Pool6.1.8 Micromixing as a Powerful Tool for Flash Chemistry; 6.1.9 Disguised Chemical Selectivity in Competitive Parallel Reactions; 6.2 Temperature Control; 6.2.1 Exothermicity of Fast Reactions; 6.2.2 Hammond's Postulate; 6.2.3 The Friedel-Crafts Reaction; 6.2.4 Solvent; 6.2.5 Heat Transfer; 6.2.6 Precise Temperature Control in Microflow Systems; 6.3 Residence Time Control; 6.3.1 The Discovery of Benzyne. The Concept of Reactive Intermediates; 6.3.2 o -Bromophenyllithi um; 6.4 Conclusions; References
7 Microfluidic Devices and Microflow Systems7.1 Brief History; 7.1.1 Microflow Systems for Chemical Analysis; 7.1.2 Microflow Systems for Chemical Synthesis; 7.2 Characteristic Features of Microflow Systems; 7.3 Microstructured Fluidic Devices; 7.3.1 Microchip Reactors; 7.3.2 Microtube Reactors; 7.3.3 Micromixer; 7.3.4 Passive Micromixers; 7.3.5 Microheat Exchanger; 7.3.6 Photochemical Microflow Reactor; 7.3.7 Electrochemical Microflow Reactor; 7.3.8 Catalyst-containing Microflow Reactor; 7.3.9 Microflow Reactors for High-pressure and High-temperature Conditions; 7.4 Conclusions; References
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Sommario/riassunto

Have you ever wished you could speed up your organic syntheses without losing control of the reaction? Flash Chemistry is a new concept which offers an integrated scheme for fast, controlled organic synthesis. It brings together the generation of highly reactive species and their reactions in Microsystems to enable highly controlled organic syntheses on a preparative scale in timescales of a few seconds or less. Flash Chemistry: Fast Organic Synthesis in microsystems is the first book to describe this exciting new technique, with chapters covering:an introduction to f